

ELECTRONIC DEVICES WITH ADJUSTABLE DECORATION

[0001] This application claims the benefit of provisional patent application No. 62/646,677, filed Mar. 22, 2018, which is hereby incorporated by reference herein in its entirety.

FIELD

[0002] This relates generally to electronic devices, and more particularly, to electronic devices with decoration.

BACKGROUND

[0003] Electronic devices such as cellular telephones include electrical components such as displays, sensors, buttons, and other components. The electrical components in an electronic device allow the device to gather input from a user and the user's surroundings and allow the device to provide output to the user.

[0004] Electronic devices such as cellular telephones and other devices also include structures that are primarily decorative, such as ink layers and patterned metal features. These structures, which may sometimes be referred to as decoration, may be used to provide a device with an attractive appearance. In some arrangements, features such as patterned metal or ink layers may be used to form a logo.

SUMMARY

[0005] An electronic device may have a housing in which electrical components such as a display and other components are mounted. In some configurations, the housing may include a transparent member such as a glass layer. The electronic device may be a wearable device having a housing or other support structure that is configured to be worn by a user.

[0006] Adjustable decoration may be formed on the electronic device. The adjustable decoration may serve as trim for the housing or a component mounted on the housing, may be visible through the transparent member, or may otherwise be incorporated into the electronic device. The adjustable decoration may have an appearance that is electrically adjustable by control circuitry in the electronic device.

[0007] The control circuitry may measure sensor data using sensors, may gather user input from input-output devices, and may gather other information. When an appropriate event is detected such as an incoming communication, a calendar reminder, user input, activation of an electrical component such as a camera, or other event, the control circuitry can adjust the appearance of the adjustable decoration, thereby helping to notify the user and others of the occurrence of the event. The adjustable decoration can also be adjusted for aesthetic reasons.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 is a perspective view of an illustrative electronic device such as a laptop computer in accordance with an embodiment.

[0009] FIG. 2 is a perspective view of an illustrative electronic device such as a handheld electronic device in accordance with an embodiment.

[0010] FIG. 3 is a perspective view of an illustrative electronic device such as a tablet computer, wristwatch, head-mounted device, or other wearable device in accordance with an embodiment.

[0011] FIG. 4 is a perspective view of an illustrative electronic device such as a computer in accordance with an embodiment.

[0012] FIG. 5 is a schematic diagram of an illustrative electronic device in accordance with an embodiment.

[0013] FIG. 6 is a cross-sectional side view of an illustrative electronic device in accordance with an embodiment.

[0014] FIG. 7 is a cross-sectional side view of layers for adjustable decoration in an electronic device in accordance with an embodiment.

[0015] FIG. 8 is a cross-sectional side view of a layer of decoration in accordance with an embodiment.

[0016] FIG. 9 is a cross-sectional side view of a dielectric stack forming a thin-film interference filter structure for a decoration layer in accordance with an embodiment.

[0017] FIG. 10 is a rear view of an illustrative electronic device with decoration in accordance with an embodiment.

[0018] FIGS. 11 and 12 are cross-sectional side views of illustrative layers for an electronic device with decoration in accordance with an embodiment.

[0019] FIG. 13 is a flow chart of illustrative operations involved in operating an electronic device with adjustable decoration in accordance with an embodiment.

DETAILED DESCRIPTION

[0020] An electronic device may include input-output devices such as displays, cameras, sensors, and other components. Decoration may be included in the electronic device such as trim structures around portions of an electronic device housing, trim surrounding a display or camera, or other trim structures, a decorative logo, coatings with desired appearances, or other decorative structures (sometimes referred to as decoration, decorative layers, patterned decorative structures, etc.). For example, a housing wall of a cellular telephone or other device may be provided with decoration. The decoration is not used to display complex content such as still and moving image content displayed on a display, but rather provides the electronic device with a desired appearance and/or brand marking.

[0021] To enhance the functionality of the electronic device, the decoration in the electronic device may be adjustable. For example, the surface of the electronic device may be provided one or more layers with optical characteristics that are electrically adjustable. By adjusting the electrically adjustable layer(s), the appearance of decoration that is formed from the layers and/or that is overlapped by the layers can be adjusted.

[0022] With one illustrative configuration, an inner surface of a glass housing wall may be provided with one or more decorative elements with a fixed appearance (e.g., a patterned logo, a blanket coating of a desired appearance, etc.) and may be provided with one or more adjustable layers. An electrically adjustable layer such as a layer with adjustable tint, reflectivity, and/or haze, can overlap the fixed decorative elements. During operation of the electronic device, the appearance of the decoration can be adjusted. Adjustments can be made that serve as a visual notification (e.g., to alert a user or others in the vicinity of the electronic device of the occurrence of an event such as receipt of a message, activation of a camera, etc.). Adjustments can also